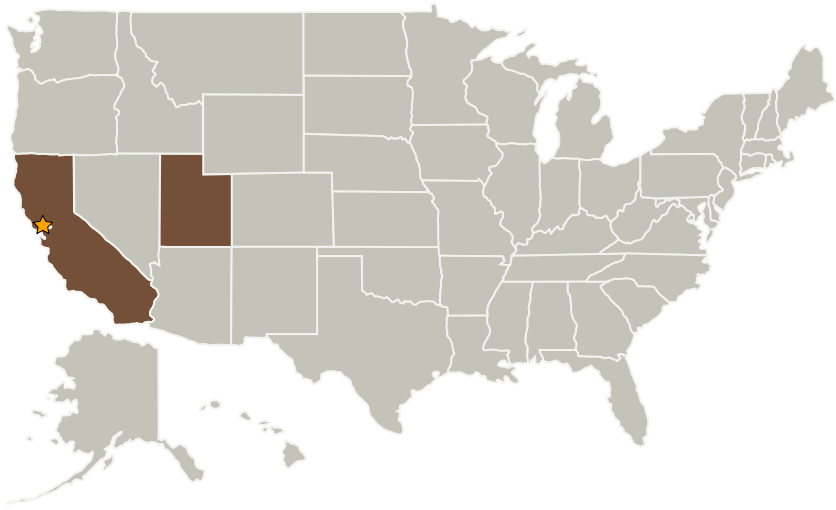
Spectroscopic Dosimeter, Phase I

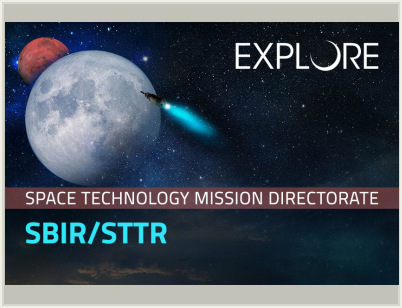
Completed Technology Project (2008 - 2008)

Project Introduction

MSI Photogenics has combined two new technologies for neutron detection into a system that has the potential to offer enhanced neutron spectroscopy for several NASA programs. The detector utilizes lithium gadolinium borate, a new scintillator offering a number of performance improvements over existing materials, and capture-gated signal analysis a technique that identifies neutrons by a unique dual signal produced in the detector. Only neutrons produce this signal, giving the detector excellent discrimination against background and the ability to measure the energy of the neutrons. The program will determine the detection efficiency of this system for 12 neutron energies; thermal, epithermal and energies from 1-10 MeV. The detection efficiency for neutron energies between 10-150 MeV will also be investigated. An estimate of neutron dose will be developed using the ICRP factors for neutron energies and the accuracy of the dose estimate provided by the Photogenics system will be evaluated.

Primary U.S. Work Locations and Key Partners





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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Merril Corporation of Utah, dba MSI Photogenics	Supporting Organization	Industry	Salt Lake City, Utah

Primary U.S. Work Locations	
California	Utah

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

John Czirr

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.5 Radiation
    - TX06.5.5 Monitoring Technology